New Source Review Applicability

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Purpose of NSR

- Allows for growth while:
  - Preventing air quality from getting worse in nonattainment areas
  - Placing limits on the amount of impact new sources can have in attainment areas

Basic Philosophy of NSR

- Major sources and major modifications may have a significant affect on air quality
- New major sources should be designed with the latest control technology

The Programs

- Major NSR
  - Prevention of Significant Deterioration (PSD)
  - Nonattainment NSR
- Minor NSR

Triggers for Major NSR

- The new major source
- A major modification at an existing major source

PSD Major Source Definition

- Potential to emit 250 tpy
- 100 tpy for 28 listed source categories
  - Large industrial sources (e.g., iron and steel mills, electric utilities, refineries, cement plants, Kraft pulp mills, etc.)
  - Fossil fuel boilers (or combinations of) totaling more than 250 MMBtu/hr

Nonattainment Area Major Source Definition

- In general, 100 tpy (PM, SO_2, NO_x, VOC, CO)
- Ozone nonattainment NO_x and VOC
  - 100 tpy for marginal and moderate
  - 50 tpy for serious
  - 25 tpy for severe
  - 10 tpy for extreme

Linking of Sources

- Are they the same two-digit SIC, or does one provide a support function (e.g., 50 percent of output)?
- Are they located on contiguous or adjacent property?
- Are they under common ownership or control (e.g., contractual arrangements)?

Additional Considerations for Military Installations

- Two-digit SIC "97" not always a good indicator
- Is source under direct or indirect control of lessor (e.g., contract for service)?
- Landlord-tenant relationship usually not considered under common control

Major Modifications

- For PSD, the project must be significant, even if source is not major for that pollutant
- For nonattainment NSR, the net increase over the last 5 years must be significant and the source must be major for that pollutant

Routine Maintenance and Repair

- Cost
- Frequency
- Duration

Significant Emission Rates

- CO 100 tpy
- NO_x 40 tpy
- SO_2 40 tpy
- VOC 40 tpy
- PM 25 tpy
- PM_{10} 15 tpy
- Lead 0.6 tpy

Significant Emission Rates

- Asbestos 0.007 tpy
- Beryllium 0.0004 tpy
- Mercury 0.1 tpy
- Fluorides 3 tpy
- Sulfuric acid mist 7 tpy
- H_2S or TRS and H_2S 10 tpy
- Reduced S compounds and H_2S 10 tpy
- MWC organics/acid gases/landfills 15/40/50 tpy

Circumvention

- Act of splitting and otherwise significant project into smaller ones to avoid NSR
  - Were the projects proposed over a relatively short period of time?
  - Could the changes be considered part of a single project or business decision?

Netting Analysis

- Sum of increases in actual emissions over the past 5 years
- At the source for which the change will occur, look at the change in actual emissions over the past 2 years
- Changes must be contemporaneous and creditable to include in analysis

Contemporaneous Changes

- An increase in actual emissions is contemporaneous if occurs between
  - 5 years before construction of the change
  - The date the increase from the change occurs

Creditable Reductions

- To be creditable, emissions reduction cannot have been “relied upon” in SIP
- Be federally enforceable

De-Bottlenecking

- Change in process that allows greater capacity or rate of production
- Change may result in increased emissions, even if affected unit does not emit pollutants itself

NSR Requirements

- Different for PSD and nonattainment NSR
- A source may be subject to both

Nonattainment NSR

- LAER
- Offsets
- Compliance with NAAQS
- Alternative site analysis
- Compliance certification

LAER

- Defined as the most stringent emission limitation, for the same class or category of source, as
  - Contained in the SIP
  - Achieved in practice

Offsets

- Must ensure reasonable progress toward attainment
- Must provide a net air quality benefit

PSD Requirements

- BACT analysis
- Air quality analysis
  - PSD increment consumption
  - Compliance with NAAQS
  - Impacts on visibility, vegetation, and soils
  - Growth analysis

Top Down BACT Process

- Identify all control strategies
- Eliminate technically infeasible options
- Rank remaining control technologies by control effectiveness
- Evaluate most effective controls and document results
- Selection of BACT (considers energy, costs, and environmental impacts)

NAAQS and Increment Compliance Demonstration

- Incorporates air dispersion modeling
- Cannot cause or contribute significantly to:
  - An air quality violation
  - An exceedance of a PSD Increment

PSD Increments ($\mu g/m^3$)

		Class II	Class I
SO_2	Annual	20	2
	24-hour	91	5
	3-hour	512	25
PM_{10}	Annual	17	4
	24-hour	30	8
NO_x	Annual	25	2.5

Significant Impact Levels ($\mu g/m^3$)

		Class II	Class I
SO_2	Annual	1	0.1
	24-hour	5	0.2
	3-hour	25	1
PM	Annual	1	0.2
	24-hour	5	0.3
NO_x	Annual	1	0.1
CO	8-hour	500	—
	1-hour	2,000	—

Other Impacts Assessment

- Visibility (e.g., parks, recreation areas, and vistas)
- Vegetation and soils—short-term pollutant concentrations are critical
- Growth for industrial, commercial, residential

Class II Area Issues

- Compilation of inventory of other sources
- Predicted violations
- Meteorological data
- Complex terrain
- Background monitoring

Class I Area Issues

- Deposition and regional haze in addition to increment consumption
- FLAG document
- Analysis required if within 200 to 300 km
- CALPUFF for distances >50 km

Permit Process Uncertainties

- Schedule—6 months to 2 years typical
- Opposition—Public, FLMs, other states
- Difficulties in getting acceptance of control technology level
- Modeling problems

Useful References

- New Source Review Workshop Manual, EPA OAQPS, October 1990
- EPA Web site http://www.epa.gov/nsr/
- NSR Policy and Guidance Database maintained by Region 7
- Guideline on Air Quality Models (Appendix W of 40 CFR 51), April 2003 latest revision
- Federal Land Managers Air Quality Related Values Workgroup (FLAG), December 2000
- EPA Air Pollution Control Cost Manual, 6th Edition, January 2002, EPA-454-02-001
- RACT/BACT/LAER database